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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,086	04/09/2002	Paul Zientek	322-00066	3078

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EXAMINER
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ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/019,086

Applicant(s)

ZIENTEK, PAUL

Examiner

Martin J Angebranndt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 9/13/04 & 7/15/04.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22-55 is/are pending in the application.
- 4a) Of the above claim(s) 51-55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-20 and 22-55 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/15/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. The response provided by the applicant has been read and given careful consideration.

The amendments to the specification are approved. The change of inventorship to add Gary F. POWER is approved. Response to the arguments of the applicant are presented after the first rejection to which they are directed.

2. Newly submitted claims 51-55 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The two groupings lack unity of invention as evidenced by the rejections applied to the method claims, particularly the rejections under 35 USC 102. There is also the issue of product by process which burdens the applicant with the requirement to show that the article made by a different process from that claimed is different from that formed by that formed by the claimed process as set forth in MPEP 2113. There are also the disclosures of equivalence of two beams and masked exposures by Okai et al. '637 and Chigrinov et al. '698.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 51-55 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. Claim 23 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

This claims recites ablation, while the claims upon which it depends recites a polarization pattern. The embodiments of claims 19 and 20 are directed to non-ablative imaging. The remaining embodiments relate to ablative imaging. Please do not confuse or co-mingle them

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 and 35-38 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 10-113780.

JP 10-113780 teach the use of masked laser exposure to machine (ablate) grating patterns. See figure 6 and abstract)

The applicant argues that plural masks are used and therefore the process disclosed is outside that claimed. The examiner disagrees noting that the claims do not exclude composite masking elements. The rejection stands.

7. Claims 1-4,35-38,43-44 and 47 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 10-319221.

JP 10-319221 (machine translation attached) teach the use of masked laser exposure to machine (ablate) grating patterns in the metallic layer. (See figures 1, 6,9 and corresponding text [0042, 0047,0050] and abstract)

The examiner disagrees with the applicant's position, not holding that the pattern (the pitch of the gratings) is contained within the mask and the beam, only the running length of the grating is extended in the direction of the grating lines by the relative motion of the mask and irradiated substrate.

8. Claims 1-4,13,35-38 and 43-44 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 11-064614.

JP 11-064614 (machine translation attached) teach the use of masked laser exposure to machine (ablate) grating patterns in the pigmented polymer film backed by the reflective layer. (See figures 5, 8, 6,9 and corresponding text [0029-0031, 0035], example 1 [0025-0026], and abstract)

9. Claims 19,20,22,25-28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savant et al. '221, in view of Okai et al. '637 and Chigrinov et al. '698.

Savant et al. '221 teach photochromic recording using azo dyes dispersed in polymers where holographic recording occurs. (4/55-66). This includes isomerization and crosslinking (4/67-5/7). Figure 3 evidenced the use of a reflective layer (lowest layer) which reflects the light back after passing through the substrate and recording layer. Polarization recording is

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specifically discussed, but occurs as long as a polarized beam is used. (25/58-26/24). The use of a two beam exposure process is disclosed. with respect to example 1.

Okai et al. '637 teach the use of two beam exposure processes for forming gratings. (1/24-32). The use of a gratings mask exposure resulting in increased contrast (light/dark ratio) and accuracy (due to lack of vibrations) and larger gratings may be made. (1/44-59) see figures 4-14d.

Chigrinov et al. '698 teach the use of a photomask with a polarizer or two beam interference with linearly polarized light to form oriented molecular regions.

It would have been obvious to modify the process of Savant et al. '221 by using a mask exposure, rather than a two beam interferometric techniques based upon the disclosure of equivalence by Chigrinov et al. '698 and with a reasonable expectation of forming an improved grating image based upon the teachings of Okai et al. '637.

In response to the arguments of the applicant, now the rejection includes teachings of masking exposures to form gratings.

10. Claims 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grime, G.W., "holographic Diffraction Gratings Recorded in Photoresist. ", in "Non-silver Photographic Processes", in view of Okai et al. '637 and Chigrinov et al. '698.

Grime teaches the exposure of a photoresist using an Argon ion laser beam. This is a CW gas laser and the beam is polarized vertically due to the structure of the Argon ion laser. The resist is coated on a glass substrate and exposed to cause a solubility change, the resist is developed and coated with metal as shown in figure 5.

It would have been obvious to modify the process of Grime, G.W. by using a mask exposure, rather than a two beam interferometric techniques based upon the disclosure of equivalence by Chigrinov et al. '698 and with a reasonable expectation of forming an improved grating image based upon the teachings of Okai et al. '637.

11. Claims 1,3-4,13,35-38 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2222696, in view of JP 10-319221 or JP 11-064614.

GB 2222696 teaches excimer laser ablation to directly form a grating in a plastic substrate and described the coating of the grating with a reflective layer. (page 2)

It would have been obvious to one skilled in the art to modify the process of GB 2222696 by using the masked exposures of JP 10-319221 or JP 11-064614 to obviate the need to successively shift the laser for each line and to reduce the possibility of the lines not being parallel due errors in such stepping.

In response to the arguments of the applicant, now the rejection includes teachings of masking exposures to form gratings.

12. Claims 1-18 and 35-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** JP 06-51683, Takeuchi et al. '857 or JP62-111276, in view of JP 10-319221 or JP 11-064614.

JP 06-51683 teaches holograms allowing only a partial view, where the holographic layer is a polymeric resin and is coated in areas with a material (3) having the same reflective index as the polymeric resins, thereby hiding the hologram in those areas. Additionally, these may be hiding layers (5 and 1 on the side opposite the holographic relief as shown in figure 8. The base

materials may be a plastic [0013]. The metallization of the hologram is disclosed. [0021-0022]. This may be considered a translucent hologram.

Takeuchi et al. '857 teach translucent/transparent holograms having the various structures shown in the figures. The holographic enhancing layer may be any of a variety of materials including thin metal films, polymers and various pigment compositions (col 6-9.)

JP 62-111276 teaches a pigmented polymeric layer having a hologram embossed therein and coated with various resins layers.

It would have been obvious to one skill in the art to modify the processes of **either** JP 06-51683, Takeuchi et al. '857 or JP62-111276 by using other known processes for forming holograms, such as the direct laser ablation taught by JP 10-319221 or JP 11-064614 with a reasonable expectation of forming a useful holographic object.

The arguments suggest that laser machining is not taught in the combination of references. This is entirely incorrect as the JP 10-319221 and JP 11-064614 references teach laser machining of metals and polymer films to produce gratings. The applicant argues that although the references are concern gratings, the disclosures of different techniques for producing the same grating articles are not combinable is without merit. The applicant is invited to submit evidence that the processes yield different results or are otherwise imbued with some unobvious effect.

13. Claims 19-20 and 22-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** JP 06-51683, Takeuchi et al. '857 or JP62-111276, in view of Grime, G.W., "holographic Diffraction Gratings Recorded in Photoresist. ", in "Non-silver Photographic Processes" combined with Okai et al. '637 and Chigrinov et al. '698



It would have been obvious to one skill in the art to modify the processes of **either** JP 06-51683, Takeuchi et al. '857 or JP62-111276 by using other known processes for forming holograms, such as the photoresist processing methods which are old and well known as established by Grime, G.W., "holographic Diffraction Gratings Recorded in Photoresist. ", in "Non-silver Photographic Processes" as combined with Okai et al. '637 and Chigrinov et al. '698 above and to modify the process by laser ablation modification taught by DE 29805481 with a reasonable expectation of forming a useful holographic object.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

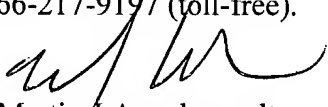
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J Angebranndt  
Primary Examiner  
Art Unit 1756

10/29/2004